EXECUTIVE SUMMARY

Background: War in Bosnia and Herzegovina disorganized the health system. Many areas became totally dependent on foreign humanitarian assistance for the provision of medical supplies. In that context, large quantities of drugs and medical material were donated.

Methods: An investigation was carried out at the end of 1996 to evaluate the donation practices of drugs and disposable medical materials during the war in Bosnia and Herzegovina.

In the course of a survey in Central Bosnia (August 1996), interviews were conducted in Sarajevo, Mostar and Tuzla with representatives of the national and cantonal health authorities, international agencies, including the World Health Organization, the Office of the United Nations High Commissioner for Refugees and the European Commission Humanitarian Office, and the major non governmental organizations implementing drug supply and distribution programs in Bosnia and Herzegovina. We carried out research in the four main drug warehouses in Mostar and Tuzla, assessing contents and volumes, and collecting samples of medicines. Investigations were however limited due to restricted access to warehouses. When permitted, reports, documents and quantitative data were collected from local institutions and international relief organizations. Contacts were made in Europe with organizations active in research, policy and advocacy regarding pharmaceutical issues, as well as with the pharmaceutical industry and waste management companies. Finally, hard data and estimates were aggregated as to offer a global quantitative and qualitative assessment of the medical donations in Bosnia and Herzegovina between 1992 until mid-1996.

Inappropriate drugs comprised useless and unusable medicines. Useless drugs included medicines irrelevant to the epidemiological context or not within the scope of the National and WHO Essential Drug Lists (WHO, 1992). Unusable drugs comprised medicines already expired on arrival or expired after arrival (e.g. oversupply, too short expiry deadline), unidentifiable drugs (e.g. delivered unsorted, labeled in unknown foreign languages), drugs damaged during shelling of warehouses or spoilt by bad conditions of transport and storage.

Results: An estimated total of 27,800 to 34,800 tons of medical supplies was donated between 1992 and mid-1996, representing an overall value of 339 to 425 millions US$. Four large international agencies with health relief expertise, together with smaller organizations, contributed 40 to 50% of all donations. They delivered around 13,200 tons of medical supplies, out of which about 95% were considered appropriate for this type of situation. In contrast, up to 90% of other donations consisted of useless, unusable or expired drugs and disposable materials. In total, inappropriate medical supplies amounted to 17,000 tons, representing an opportunity cost of US$ 250 millions. Two thirds of inappropriate donations were unsorted unused medicines or samples returned by individuals and health professionals; one third resulted from dumping practices. Inappropriate donations may have resulted in a gain of US$ 25.5 millions for donors and a loss of US$ 34 millions for recipients.

In general, effective coordination of medical supplies was absent during the 4.5 years of relief efforts to Bosnia and Herzegovina. Had it been given priority, inappropriate drug donations as well as lack or excess of useful medicines could have been better identified.

Conclusions: Dumping practices and donations of mixed unused medicines, however well-intentioned, are neither acceptable, nor useful. Recommendations for improving the quality and efficiency of drug and medical material donations in emergency situations are detailed at three levels:

1. the policy level (international guidelines and regulations, national drug policies, regulations for drug donations and disposal of pharmaceutical waste in donor and recipient countries);
2. the advocacy and information level (awareness raising and campaigning activities, international monitoring of drug donations);
3. the operational level (coordination and management of medical donations, guideline for efficient drug donation programs).

Keywords: Disaster, Medical Supply, Humanitarian Aid, Public Health

LIST OF TABLES

LIST OF ABBREVIATIONS

AEDES	Agence Européenne pour le Développement et la Santé
BMJ	British Medical Journal
BiH	Bosnia and Herzegovina
CHMP	Centrale Humanitaire Médico-Pharmaceutique
CMC	Christian Medical Commission
DEM	Deutsche Mark
ECTF	European Community Task Force
EDL	Essential Drugs List
HAI	Health Action International
ICRC	International Committee of the Red Cross
IDA	International Dispensary Association
IFPMA	International Federation of Pharmaceutical Manufacturers Association
IFRC	International Federation of the Red Cross and Red Crescent Societies
IPH	Institute of Public Health
JAMA	Journal of the American Medical Association
MDM	Médecins du Monde
MSF	Médecins sans Frontières (B=Belgium; F=France; H=The Netherlands)
MoH	Ministry of Health
ND	Not determinate
NGO	Non Governmental Agency
ODA	Overseas Development Administration
PAHO	Pan American Health Organisation
PIMED	Pour une Information Médicale Ethique et le Développement
PSF	Pharmaciens sans Frontières
ReMed	Réseau Médicaments & Développement
Tulipe	Transfert d'Urgence de l'Industrie Pharmaceutique
UNHCR	United Nations High Commissioner for Refugees
USD	US Dollar
Unicef	United Nations Children's Fund
Unprofor	United Nations Protection Force
WCC	World Council of Churches
WEMOS	Werkgroep Medische Ontwikkelingssamenwerking
WHO	World Health Organisation

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I. INTRODUCTION

I.1 TERMS OF REFERENCE

Following war and fierce fighting in Bosnia and Herzegovina since 1992, the health system has been totally disorganized and, in some places, was totally dependent on foreign humanitarian assistance. In that context, large quantities of drugs and medical material were donated to BiH and today, large amounts of inappropriate or expired medical supplies are reported to be stored in several locations in Central Bosnia or to have been destroyed throughout the years. Those inappropriate donated supplies raise important ethical, moral and medical questions. As for their disposal, no concerted and concrete measures have so far been taken.

MSF-B, involved in humanitarian assistance in BiH since 1993, expressed concern about this issue and wanted to get a clearer picture of the scale of the problem. Therefore, at the request of MSF-B medical and operational departments, two AEDES consultants carried out a general investigation to evaluate the donation practices of pharmaceuticals and medical material in BiH in terms of quantity, quality and appropriateness. More specifically, the investigation aimed at :

- assessing how far the donations responded to the specific needs of the country;
- assessing the scale of the inappropriate drug donations and their consequences in terms of costs, public health and environmental hazards, burden for the local authorities, etc.
- analysing the drug supply and distribution chain (donors, suppliers, selection of medical supplies, ordering, packaging, handling, transport, storage, distribution, etc.);
- identifying policies, mechanisms and legislation regarding drug donations;
- drawing up recommendations for action.

This report presents the results of AEDES investigations. It consists of five parts:

1. a review of relevant background information (Chapter II);
2. a description of the drug supply and distribution process in BiH throughout the war (Chapter III);
3. a detailed account of the facts and observations gathered from the field study (Chapter IV);
4. conclusions on the drug donation practices in BiH (Chapter V);
5. a set of strategic and operational recommendations and priorities for actions (Chapters VI and VII).

I.2 METHODOLOGY

In the course of a two-week visit in Central Bosnia (6-20 August 1996), the consultants met and discussed with representatives of the health authorities, international agencies and NGOs in Sarajevo, Mostar and Tuzla. They were able to visit and conduct some research in two of the three main warehouses of drugs and medical material in Mostar (Zalik central warehouse and stores of Bjeli Brijeg hospital). They were allowed to make a quick tour in the store of the Tuzla hospital and visited the Federal Drug Logistic Centre, recently set up in Tuzla, and the store of the Dom Zdravlja in Srebrenik.

To set the field study undertaken in Bosnia in a broader perspective, the consultants contacted various associations and experts involved in research, education, policy and advocacy in the field of pharmaceutical issues and particularly active in drug donations practices. In addition, they collected and reviewed documents and reports of local institutions, international agencies and NGOs, as well as relevant articles and publications in the medical and general press. They also investigated the regulations regarding the management and destruction of expired and unused drugs, mainly in Europe.

I.3 LIMITS OF THE INVESTIGATION

The field study and the results of the investigation had to be narrowed to a general qualitative assessment of the drug donations situation and practices in BiH, as the consultants found themselves confronted to two major limitations in addition to limited time :

1. unavailability of reliable quantitative information, aggregate data, statistics and systematic and comprehensive analysis of the drug supply programmes;
2. restricted access to the warehouses where inappropriate or expired drugs are stored.

I.3.1 Lack of coordination and monitoring

Probably the most important underlying factor for the unavailability of data was the ***poor coordination and absence of central monitoring*** at field level of the humanitarian assistance in general, and medical aid in particular, throughout the conflict.

It is recognised that in large-scale relief operations, and all the more under war context, coordination, exchange of information and control of the flow of incoming supplies are challenging tasks, but they nevertheless remain an issue of prime importance in ensuring the best relief response. In BiH, in spite of UNHCR, WHO and the health authorities attempts to coordinate actions and monitor relief efforts, no effective drug supply management, reporting and monitoring systems have been established to formally register needs, requests, deliveries and distribution of drugs, screen the conditions of the donated medical supplies (volume, quality, relevance) and evaluate the impact and efficiency of the drug supply programmes. This is surprising in regard to the large amount of funds and resources granted for drug supply programmes in BiH (see chapter III) and the experience intergovernmental agencies and international NGOs should have gained through past relief activities as well as numerous recommendations, advises and lessons drawn from past disasters.

Many reasons may be given to explain the lack of coordination and monitoring although none of them can justify it. On one side, the coordination and monitoring process was hampered by the resources constraints encountered by UN agencies, particularly WHO whose mandate was to lead and centralise the coordination of the health care relief activities [33, 34].

On the other side, in addition to the chaos inherent to the war environment in BiH and the fact that aid agencies had to face and adapt their operations to a new emergency context (a war in Europe while their expertise in dealing with conflicts was limited to relief operations in the Third-World), other significant difficulties which should be emphasised are:

- the diversity and large number of intergovernmental agencies, non governmental organisations and individuals involved in medical supplies distribution;
- the rapid and unforeseen changes and disruptions in the supplying roads, the security situation and the communication between central and field areas (enclaves, fast-changing front lines, lack of access to key interlocutors, etc.);
- the non-comparability of data compiled by implementing agencies and often, their unwillingness to give details on their activities;
- the differing policies and procedures for drug procurement, supply and distribution set up by implementing agencies and donors;
- the rapid turnover of expatriate field staff in most organisations;
- the reluctance of some local authorities to cooperate with the central health authorities and the international coordinating agencies;
- the off-centring in bordering countries of the coordination centres of the main implementing agencies during the war (Zagreb, Split, Belgrade).

Some agencies (WHO, ICRC, MSF) have conducted internal and/or external evaluations of their activities and relief programmes, but on a qualitative rather than a systematic and analytical approach, and limited to their own operations rather than on a comprehensive level [1, 35, 36 & 37].

I.3.2 Lack of cooperation from the health authorities

Another factor impeding the collection of data and information was the ***reluctance of the health authorities*** to provide any details and most of the time their unwillingness to discuss the problems of inappropriate medical donations. The main reasons for this attitude are:

- political sensitivity;
- tensions and lack of coordination between the federal and cantonal health authorities (enclaves, disruption in communication facilities, desire for independence leading cantonal health authorities to overrule or disregard federal actions and policies, etc.);
- bureaucratic and uncommunicative attitude, remnant of a pre-war centralised socialist system,
- difficulties to admit that data and information requested are simply not available due to the breakdown of the health services management capacities, hampered by difficult working conditions, drastic reduction of health staff (particularly pharmacists and handling workers), overwhelmed by the scale of the medical supplies donations (mainly unsolicited and unsorted consignments) and confronted to fluctuating demands and variable accessibility to the health care structures.

II. BACKGROUND INFORMATION ON INAPPROPRIATE DRUG DONATIONS IN EMERGENCY SITUATION

Medical supplies are a critical element in health operations in emergency situations. Effective supply and distribution of appropriate drugs and medical material are essential in alleviating suffering and saving lives. Since the seventies, a diverse range of actions, guidelines, regulations, publications and campaigns have been developed to improve the quality and efficiency of drug donations in emergency situations.

Yet, in spite of experience gained, repeated pleas and recommendations made by assisted countries, intergovernmental agencies (WHO, UNHCR, PAHO, UNICEF, etc.), international relief agencies and Western governments, current donation practices show that lessons are not being learned. Indeed, cases of drug supply mismanagement continue to occur on a large scale. Huge quantities of unrequested and unnecessary drugs and medical supplies continue to be sent to affected countries as soon as a disaster strikes.

It is therefore of prime importance to continuously:

- increase awareness that unsolicited donations can be more harmful than useful (and even create a "second disaster");
- foster changes of attitude;
- increase the central coordination and monitoring of relief operations,
- encourage the use by donors, suppliers and recipients of a systematic and rational framework for the supply and management of drug donations.

II.1 REVIEW OF INAPPROPRIATE DRUG DONATIONS

Numerous examples have demonstrated that unsolicited and inappropriate donations of medical supplies, generally not based on precise assessment of actual medical needs and proper requests for external assistance by the authorities of the stricken country, are impeding the relief efforts and doing more harm than good. Such donations overwhelm the already fully stretched health facilities and management capacities of the affected area, cause various health and environmental hazards, use critical and often limited resources and create logistical nightmares with high handling, sorting, transport, storage and disposal costs, very often at the expenses of the recipient country.

The prevailing crisis in Bosnia and Rwanda have not been exempt of such problems and can be added to the already numerous cases reported over the last twenty years.

A list of such cases is compiled in Annex 3. Those examples illustrate the scale and the variety of inadequate responses to emergency situations. They are drawn from a comprehensive review of the medical and general press.

Most reports on inappropriate drug donations are stories based on actual experience and visual observations of facts. Drug donation practices have very seldom been evaluated in a comprehensive, analytical and systematic way. It is therefore very difficult to quantitatively assess and compare the impact, quality and appropriateness of medical supply donations to the recipient countries. Some specific and general analysis have been carried out in the aftermath of the earthquake in Guatemala [2 & 3], Mexico [4], Armenia [5], as well as in Guinea Bissau [6].

The following table puts in parallel the results of these analysis as well as estimations gathered from other sources ; ***it shows that inappropriate medicines represented between 30 to 70% of the donated drugs or, on average, 55-60% of all donations.***

Table 1 - Comparative data on the quality of drug donations

Source	Ref.	Unusable	Not needed / Irrelevant	Relevant but unsorted or not easy to identify	Immediately useful
MSF-AEDES (Armenia) in the aftermath of the earthquake 1988	5	12% (8% expired and 4% frozen on arrival)	32% (11% total useless, 21% not for emergency)	26% (12% difficult to identify, 14% unsorted)	30%
		44%		56%	
Essential Drugs Programme, Armenia, 1994	38	30 to 40% of the donated drugs is discarded due to expiration, bad quality or unusefulness			
PAHO (Guatemala)	2 & 3	90% of aid was unsorted and unsolicited		< 10% of unsolicited aid was useful	
WHO Zagreb	7, 8, 39	45%		55%	
		15%	30%		
Essential Drugs Programme, Georgia, 94	H	70% of all donated drugs are useless			

II.2 THE ISSUE OF UNUSED DRUGS IN THE WESTERN WORLD

II.2.1 Scale of the problem and regulations

Referring to the 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Waste and their Disposal [41] to which former Yugoslavia participated, unused drugs are considered as wastes to be controlled (category Y3). It is also clearly stated that:

- "a party shall not permit hazardous wastes or other wastes to be exported to a non-party or to be imported from a non-party" (art.4, §5)
- "any transboundary movement of hazardous wastes or other wastes that results in deliberate disposal (e.g. dumping) of hazardous wastes in contravention of this Convention and of general principles of international law, shall be deemed to be illegal traffic" (art.9, §1e)

In France, unused medicines represent 22,500 tons per year, that is to say around 40% of the amount of drugs marketed annually [42].

Regulations on unused drugs differ and are subject to country rules, e.g. the decision to consider a drug as a waste product.According to countries, collected medicines may be considered either as household wastes or as dangerous wastes. Surprisingly, there are no established international regulations concerning the collection and destruction of unused medicines and their re-use for humanitarian purposes. On the other hand, there is a vast array of national, regional, and local directives, sometimes conflicting or ambiguous (cf. § II.3.2) [42].

Lack of *ad hoc* incinerators is rife in most developing countries, and their use is expensive (in the order of 3,000 DM per ton in the European market). Many health associations emphasised that donations of unused drugs are a hazard not only to public health, but also to the implementation of essential drugs programmes and costs recovery. Recently, unused drugs donations were subject to specific criticisms from international bodies and NGOs [7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 39, 43]. Several guidelines for drug donors and donations were issued over the past few years, e.g. the recent *WHO Guidelines for Drug Donation* in May 1996. These guidelines are the most extensive ones issued so far, and are based on a consensus reached between the main agencies involved in humanitarian actions or development, the pharmaceutical companies, various universities and even countries.

II.2.2 Review of previous attempts at sorting unused drugs

Table 2 : Comparative data on the quality of unused drugs

Sources	ref	weight (Kg)	nb of brands	to dispose of		comments
				expired	useless	
1980 Operation Marjolaine	42	7,230	ND	82%	11 to 13%	
				93 to 95%		
1983 Heron	42	216	3,025	54%	ND	
1983-84 Bissau Guinea Maritoux	6	8,000	1,714	ND		funding to local health facilities equivalent to the transport and packaging costs would have been more valuable
1987 PSF Herault	42	455	5,226	86%		51% of total weight was accounted for by packaging
1981 PSF	42	4,000,000	ND	80%		
PIMED report on unused drugs	42	ND	ND	80%		
1992 Ordre de Malte France	42	1,200,000	ND	41%		54% was sent to Third-World countries
MSF-F warehouse (unused drugs or surpluses from health structures)	44	ND	ND	30 to 40%		

The following main points can be drawn out of the table and the reports referred to:

- ⇨ high diversity of brands making the sorting operation arduous;
- ⇨ high proportion of medicines to be destroyed after sorting (from 30 to 95%) ;
- ⇨ high proportion of expired medicines;
- ⇨ around 50% of total weight represented by packaging;
- ⇨ very low proportion of appropriate medicines i.e. belonging to WHO essential drugs list and corresponding to population needs in developing countries or during emergency crisis;
- ⇨ although it is difficult to quantify the costs of a systematic drug sorting process, it is recognised that the benefits of such a process are very marginal in regards the investment needed.

II.3 DEVELOPMENT OF GUIDELINES, POLICIES AND LEGISLATIONS REGARDING DRUG DONATIONS AT THE INTERNATIONAL, NATIONAL AND LOCAL LEVELS

II.3.1 International actions

WHO is continuously developing systems and guidelines for assisting both developed and developing countries in regulating international drug trade and improving drug policies, such as:

- WHO essential drugs principles [45];
- WHO certification scheme adopted in 1975 providing recommendations for improving the quality of pharmaceuticals entering international trade [46];
- WHO emergency health kit ;
- WHO's resolution (EB97.R14) to the World Health Assembly in May 1996 regarding drug donations. It urges the member-states to eliminate inappropriate donations of drugs and requests the Director-General to disseminate the interagency guidelines for drug donations and encourage its use and review after one year [18, 19].
- WHO inter-agency guidelines for drug donations released in May 1996.

The key limitation is that WHO recommendations are not compelling and cannot therefore be enforced. Some countries are still not adhering to the WHO systems and principles and those which did adhere to, do not always apply them. Therefore they have limited effectiveness and there is a great deal to be done at the international level to turn them into regulations and laws [46, 47, 48, 15, 20].

II.3.2 Actions in donor countries

Although international and national pharmaceutical legislation are very strict regarding the production, selling and distribution of medicines, they very seldom include measures regulating the management of unused medicines resulting from households and professional surpluses. None of them include policies regarding the collection and export of such medicines for humanitarian purposes [42, 46, 47, 48].

In the European Union, the legal framework prohibits the collection and export of drugs that have been issued to patients and returned to pharmacies. Nevertheless in most European countries, the legal status of those medicines remains ambiguous: pharmaceuticals are legally considered as dangerous waste but unused drugs are usually considered as household waste and therefore are not regulated by the legislation on dangerous waste. Although various systems for collecting and destroying unused medicines have been set up in European countries, several relief agencies are still promoting the collection of unused medicines for humanitarian purposes and households are very often disposing of their unused drugs through unofficial channels, such as throwing them away in the dustbin or in the toilets or else giving them to charities [15, 42].

Some European countries are taking positive initiatives to tackle the issue of unused medicines. UK and the Netherlands have adopted

measures regulating the prescription of pharmaceuticals with the aim of reducing the amount of wasted medicines. Professional pharmaceutical organisations in Norway and UK have set up measures for a proper management of unused medicines (collection and destruction) and conducted awareness campaigns among the public. In addition, British and Dutch organisations have taken position against the delivery of unused medicines for charitable purposes [42].

The Dutch government also took a strong stance against such drug donation practices stating that "the collection of unused drugs is not acceptable according to the WHO's guidelines, to which the Dutch government subscribes." [15,46].

In France, a specific organisation, named Cyclamed, created and funded by the pharmaceutical industry, is coordinating the collection of unused drugs from households through a specific channel; some of the collected medicines are used for charitable purposes.

II.3.3 Actions in recipient countries

More and more recipient countries are reinforcing their national drug policies and some are in the process of establishing specific systems and procedures regulating import and quality control for in-kind donations of medicines and medical supplies as part of emergency as well as development aid. A few examples are listed herewith:

- In the Yugoslav Republic (Belgrade) and Azerbaidjan, the authorities request to be advised in advance of the details of the donations and to receive the packing lists including batch n. and expiry dates. The donations are then granted a shipment authorisation and screened through the national customs clearance procedures.
- In Mozambique and Guinea-Conakry, the authorities have assigned an international quality control institute (e.g. FGS for Guinea) and request drug donations to be screened by this institute who is responsible for delivering conformity certificates before shipment.
- Eritrea has established a strict policy on drug donations [21, 22].
- Tanzania drew up guidelines for drug donations.
- Georgia and Armenia too has set up measures regulating drug donations [20, 38, 40].

But in many countries, there are still no effective controls on drug donations and legislation regulating donations is still non-existent (e.g. in Lithuania) [23].

II.4 HEALTH AGENCIES AND NETWORKS INVOLVED IN THE ISSUE OF INAPPROPRIATE DRUG DONATIONS

Various international relief agencies and health networks are involved in research, advocacy, campaigning and development of regulations regarding the issue of drug donations. Several key organisations have been identified during this investigation. The current status of their positions as well as the actions undertaken at national and international levels are briefly detailed here below.
This list is far from being exhaustive; it gives a broad picture as an attempt to gather information and facilitate the coordination of efforts, the sharing of experiences and the exchange of information.

Christian Medical Commission (CMC) of the World Council of Churches (WCC)

The World Council of Churches is a fellowship of over 320 churches. One of its unit, CMC, was set up to support and counsel the church-related health work. CMC has established in 1981 a pharmaceutical advisory group for the advocacy of the WHO essential drugs concept and the promotion of rational drug uses in the church-related health institutions. CMC was the first agency to develop guidelines for drug donations which were issued in 1988 and served as the basis for the WHO inter-agency guidelines.

WEMOS

Wemos is a Dutch development agency created at the end of the 80's. Wemos is involved in education and awareness raising in the Netherlands and in policy advocacy at the European level regarding health regulations. Five programmes are currently underway, including one on drug donation practices. Wemos is calling for stricter legislation on the export of pharmaceuticals, the provision of correct pharmaceutical information and higher quality in drug donations.

WEMOS and nine other Dutch organisations, including MSF-H, created a Working Group on Drug Donations in order to join efforts and collaborate on an awareness campaign in the Netherlands, to be carried out during the period July 1995-December 1996. This campaign is supported by the Dutch Drugs Inspectorate and the Dutch Pharmacists Association. The objective of the campaign is to advocate against the donations of unused drugs and inform potential donors on alternatives. The target groups are: (a) organisations and individuals involved in development aid, in particular those donating drugs, (b) pharmacists and GPs, and (c) the Dutch general public, in particular those returning unused drugs to the pharmacies.

In addition, Wemos is currently questioning the Dutch parliament regarding drug donations.

Health Action International (HAI)

Health Action International is an international informal network of some 100 consumer, health, development and other public interest groups involved in health and pharmaceutical issues in over 60 countries. HAI works through three coordination offices (Amsterdam for Europe and Africa, Malaysia for Asia and Peru for Latin America). HAI is raising awareness in Europe of drug issues in developing countries and promoting rational drug use in Europe through research, policy advocacy, public education and debate with industry.

An annual HAI-Europe meeting is organised every year. This year, in October, HAI is preparing a seminar on the World Trade Organisation Pharmaceutical Policies and Essential Drugs. HAI has also published several reports regarding pharmaceutical issues.

Pour une Information Médicale Ethique et le Développement (PIMED)

PIMED is a French association created in 1990 by health professionals from the NGO "Frères des Hommes". It works through research, advocacy, campaigning, training and networking in health and pharmaceutical issues. It is currently involved in three areas: (a) drug export to developing countries, (b) pharmaceutical advertising and (c) drug donations. PIMED has realised a survey on unused drugs in Europe and participated in a research on drug export/import legislation in Europe and developing countries [47].

Réseau Médicaments et Développement (ReMed)

ReMed is a French association created in 1983 and involved in research, networking and information services aiming at promoting appropriate pharmaceutical policies for developing countries. ReMed organises seminars and conferences and has been involved in several researches, such as the drug export/import legislation in Europe and developing countries [47], the private pharmaceutical trade sector in Africa, drug quality on the African market.

Healthnet International

HealthNet is a Dutch consultancy agency specialised in health issues. Healthnet is a member of the Working group on Drug Donations (see Wemos). Healthnet's representative in Rwanda is looking at drug donations issues in Rwanda.

International Committee of the Red Cross (ICRC)

ICRC developed its own guidelines for drug donations and participated in the development of the WHO inter-agency guidelines for drug donations. In Bosnia, one of ICRC medical coordinators carried out a general evaluation of the effectiveness of medical supplies donations to hospitals, concentrating mainly on ICRC donations and on the regions of Republika Srpska and Srpska Krajina, during 1994-1995. A summary report has been published in the JAMA [1].

Pharmaciens Sans Frontières (PSF)

PSF International, as signatory of the WHO inter-agency guidelines for drug donations, is advocating against the use of unused medicines for humanitarian purposes. PSF International therefore finds itself confronted to tense internal debates with most of the regional independent PSF agencies, scattered throughout France, still promoting the initial PSF principle of collecting unused medicines for humanitarian purposes.

PSF International is also campaigning against Cyclamed, an organisation created by the pharmaceutical sector for the collection and disposal of unused drugs, who is donating part of the collected medicines as humanitarian aid. In addition, PSF International is confronted to bad donation practices from Tulipe, a NGO created by the pharmaceutical industry. The agency is currently collecting evidences through its field offices on the negative impacts of inappropriate drug donations with the aim of carrying out an information campaign in France about this issue.

In the Netherlands, PSF-H has joined the campaign against the donations of unused drugs as a member of the Working group on Drug Donations (see Wemos).

Médecins Sans Frontières (MSF)

MSF-International participated in the development of the WHO inter-agency guidelines for drug donations. MSF-H is a member of the Working group on Drug Donations (see Wemos) and initiated with WHO the first evaluation workshop on the humanitarian assistance to former Yugoslavia. MSF-USA got involved in an investigation into drug dumping of American pharmaceutical companies which delivered humanitarian aid in Rwanda [8].

MSF-F, following the large quantities of unused drugs spontaneously donated to MSF-F, has created « l'Entrepôt » in 1979, which subsequently became an independent centre, for sorting, organising and storing those medicines. Today, the « Entrepôt » does not provide drugs to MSF missions abroad anymore but is still supplying a great number of associations active in Africa, Eastern-Europe, Latin America and Southeast Asia.

The pharmaceutical industry

The following elements illustrate some of the position of the Western pharmaceutical industry regarding drug donations:

- The pharmaceutical companies participating in the development of the WHO inter-agency guidelines for drug donations have created a strong lobby group, including some international relief agencies (mostly Americans), to counteract WHO and other relief agencies willingness of tightening the guidelines recommendations.
- In a letter to WHO in March 1996, Dr. Arnold of IFPMA (the International Federation of Pharmaceutical Manufacturers Association) said that guidelines, « could be a major deterrent to the massive donations of modern drugs which are currently made by the international industry » [24].
- The emergence of NGOs created under the auspices of pharmaceutical companies (e.g. Tulipe in France).

III. THE DRUG SUPPLY AND DISTRIBUTION SYSTEM IN BIH DURING THE EMERGENCY PHASE

III.1 BRIEF OVERVIEW OF THE HEALTH STATUS AND HEALTH CARE SYSTEM IN BIH

Before the war, former Yugoslavia enjoyed a high health status. Health care and pharmaceutical services, competence and infrastructure were well developed and the population enjoyed reasonable access to a comprehensive and well-staffed health care system: a dozen general or regional hospitals, 109 primary health care centres, called Dom Zdravlja, and 900 primary care settings, called ambulantas, with around 7000 doctors and 18,000 nurses. The organisational and managerial structure of the health system was divided among four levels: federal, cantonal, the Sarajevo district and municipalities [49].

The pre-war health system suffered from two major problems [50]:

a) a supply-dominated approach and a centralised decision-making process leading to bureaucratic bargaining rather than a rational assessment of needs and available resources and providing relatively little attention to primary health care or family practice;
b) an over-specialisation and high rates of utilisation, referrals and prescribing;
c) an hospital-centrist system.

The war in BiH (1992-1995) has claimed a high toll on the population: over two hundred thousand people were killed, one million became refugees while another one million were displaced within their own country [51]. The population has been suffering from, and is still experiencing, a dramatic decline in living conditions, a drastic reduction of access to health services, malnutrition and intense psychological stress.

The functioning of the health care services has been severely disrupted with the destruction and deterioration of health facilities and medical equipment, lack of medicines and consumable materials, collapse of the health care financing system and reduction of the number of health personnel [49, 50].

III.2 DRUG SUPPLY PATTERNS

III.2.1 Supply sources

Prior to the war, 80% of the pharmaceutical needs in BiH were covered by the high quality production of 16 specialised pharmaceutical companies within the former Yugoslavia. Strong regulations for pharmaceutical production existed. With the dissolution of Yugoslavia, BiH was left with four pharmaceutical plants and therefore a reduced availability of medicines, which had to be imported at world-market price or provided by foreign aid.

During the war, only two out of the four plants continued to function at reduced pace and could provide about 8% of needed drugs [49]. As a consequence, since the very beginning of the war in BiH, the regular supply of medicines was cut off and the health sector became completely dependent on foreign humanitarian assistance.

The suppliers of pharmaceuticals and medical items can be categorised in four groups:

⇨ The most significant contributors to pharmaceutical supplies were well-known large international agencies and NGOs, specialised in the health sector, such as WHO, PSF, MSF, MDM and ICRC. All those agencies had field offices in several locations in BiH. They regularly coordinated their actions with WHO and the health authorities. Their donations were made on a regular basis according to specific drug supply and distribution programmes, funded by multilateral and bilateral donors (ECHO, ODA, governments, etc.). Those agencies order medicines and medical material through their own procurement agency (e.g. CHMP for PSF, Transfer for MSF-B, etc.) or logistic department,

who purchase supplies from recognised and registered pharmaceutical companies on the basis of quotations and quality/cost analysis. They generally do not accept in-kind donations. Donated drugs are of good quality, well packed and labelled. ICRC in particular get 90% of their supplies from Slovenian and Croatian companies, the rest (mainly fluids) was bought in Western Europe.

⇨ Other international NGOs such as Ordre de Malte, Caritas, World Vision, national Red Cross Societies, etc. have also provided large quantities of medicines. Some of them have little or no expertise in the procurement and management of pharmaceutical supplies. In general, they occasionally supplied unsolicited medicines, as part of a general aid programme (food, clothing, toys, etc.). Those agencies were usually represented in the field through their own field office(s) or through their local network (such as the local Red Cross Society, local Caritas, etc.). They delivered medicines which they received as in-kind donations from pharmaceutical companies or private donors, or which they purchased with funds collected through specific appeals for BiH.

⇨ Well-meaning associations of citizens, private individuals, health professionals as well as churches and small local or foreign charities delivered an important amount of unsolicited donations, generally on an *ad hoc* basis, unaccompanied and without prior notice. The great majority of those donations was inappropriate. The donations mainly originated from Western European countries and the Bosnian Diaspora and consisted of unused and mixed medicines, collected by non-professionals from private individuals, pharmacies or health facilities. Those suppliers have no or very little expertise in relief operations and were not represented in BiH.

⇨ Dubious transactions from private commercial companies (mainly US) and Western armies resulting in the procurement of expired or bad quality medicines. Mafia-type business is also included in this category. During our investigations in Belgium, we were informed about an organisation (Pharma Aid) who contacted the sole agreed Walloon company for the incineration of drugs (Meprec). Pharma Aid wanted to buy from Meprec its stocks of medicines to be disposed of and sell them back to Bosnia. They also approached some hospitals.

III.2.2 Accessibility

Throughout the war in BiH, the key entry routes for truck convoys to BiH were through the custom points in the city of Metkovic and Tomislavgrad and from there, through the self-proclaimed republic of Herceg Bosna in Western Herzegovina, which exercised tight customs regulations. Authorisations for passage for all donations regardless of their destinations were granted by the MoH of Herceg Bosna located in West Mostar, after receipt and approval of the lists detailing the content of the donations. The MoH of Herceg Bosna was only monitoring the quality and appropriateness of donations for their region, whereas donations for BiH were only controlled in terms of quantities more than quality (the objective was to analyse and compare what was delivered to Croatian Herceg Bosna in regard to Muslim Central Bosnia). Therefore the custom regulations did not hamper the arrival of inappropriate donations to BiH.

Within BiH, ever-changing routes were used according to fluctuating front lines and security situation. Some areas remained open and accessible throughout the conflict, such as Tuzla, Zenica, Western Herzegovina which had adjacent and supportive links with Croatia, whereas certain areas of Central Bosnia were difficult to reach or sometimes completely cut off by active front lines (Sarajevo, Mostar, Gorazde, Srebrenica, Zepa, etc.).

In the case of Sarajevo, which remained besieged throughout the war, only UNHCR and Unprofor convoys had limited access. This allowed for a better control of the quality of donations and most medical supplies that arrived in Sarajevo complied with WHO guidelines. Depending on front lines and security conditions, Sarajevo and other enclaves could be reached through "blue" roads, controlled by Unprofor who escorted private convoys. In that case no strict monitoring was enforced. In UNHCR and Unprofor convoys, priority was given to food and there was time when medical supplies could not be transported due to lack of space on convoys.

III.3 DRUG DISTRIBUTION PATTERNS

Prior to the war, medicines were bought by Intermedia, a parastatal agency, from the Yugoslav pharmaceutical companies and stored in regional warehouses, called "veledrogerija". Hospitals, Dom Zdravlja and pharmacies ("apothekers") ordered medicines and consumable to the central warehouses, which were responsible for transport and delivery. Hospitals and Dom Zdravlja were only providing emergency drugs, injectables and dressing materials. Most oral medicines were distributed by pharmacies to patients upon prescriptions. Generally, medicines were prescribed by Dom Zdravlja and delivered in the pharmacies. The patients had to pay a symbolic price (5 to 10% of the value) and some specific drugs were free of charge (e.g. paediatric). For mental health drugs, there was a special procedure for prescribing, storing and recording (double prescription, special records, locked storage and monitoring by police). [37, 52].

During the war, a multi-layered uncontrolled distribution system replaced the centralised and organised existing distribution structure (procurement by the "veledrogerija", prescriptions by Dom Zdravlja and distribution by pharmacies).

International relief agencies were delivering medical supplies directly to hospitals and Dom Zdravlja. This approach was implemented for two reasons: on one hand, the central drug warehouses were either not accessible, nor did they have the logistic capacities (transport, staff, handling equipment, etc.) and the possibility to move around due to the security situation. On the other hand, relief agencies feared that medicines donated to the central structure would not be fairly delivered to the health facilities and that large quantities may be diverted by the authorities for military use. In addition, ECHO, the European Commission Humanitarian Office which funded large drug supply programmes, specifically requested in its funding agreement with NGOs that a direct delivery system should be implemented.

Most of the international relief agencies with specific drug supply programmes (MSF, PSF, ICRC, MDM and WHO on a lesser scale) had set up their own primary and secondary distribution system, with their own warehousing capacities, transport means and field staff. Needs were assessed through their field offices, coordinating, whenever possible (fluctuating security, accessibility and communication conditions), with the local health authorities and other agencies in the field involved in drug distribution. WHO was essentially distributing through UNHCR or other NGOs storage and transport facilities.

As a consequence of the influx of emergency aid, hospitals and Dom Zdravlja were directly receiving large quantities of medicines, disposable material and medical equipment. They had to shift from a basic role of prescribing medicines to active central points for distributing medicines whereas the role of "apothekers" decreased. Hospitals and Dom Zdravlja were ill-prepared to play such a role and lacked expertise, competence and facilities in drug management, storage, handling and transport.

In addition to the regular drug supply programmes of medical relief agencies, hospitals and Dom Zdravlja were confronted to large volumes of unsolicited in-kind donations, usually delivered without prior notice and unaccompanied. The "gifts" were generally "dumped" in the health facilities, which often had no choice but accept them. Sometimes also, convoys with such donations were arriving to MSF, ICRC or PSF field offices, asking whether they could take the donations and distribute them. These agencies always refused to take such loads and nobody knows what happened to those

rejected donations afterwards... Private medical donations also arrived through UNHCR channel, resulting from UNHCR appeals for food aid and other material. These items were sent directly to WHO field stores or health facilities without prior notice [35].

III.4 PROBLEMS IN THE DRUG SUPPLY AND DISTRIBUTION PROCESS DURING THE WAR

III.4.1 Management problems

The geographical and cultural proximity of BiH and relatively easy access coupled with intense media coverage made the situation highly visible and triggered strong emotional involvement of the international community, the public in Western countries as well as the Bosnian Diaspora and refugees abroad. In 1992, only few relief agencies (the major international ones) were present. In 1993 and particularly 1994, a large scale international response was provided, with over 250 registered organisations, including more than 70 operating in the health field [38].

The security conditions which obviously put heavy strains on all involved in the relief efforts, added to the multiplicity of aid suppliers, made coordination and monitoring of aid extremely difficult, leading to a very chaotic supply and distribution of relief items and creating logistical and management problems at all levels, as indicated in the following table.

Table 3 - Factors limiting the effectiveness of the drug supply and distribution system

	Recipient level	*Donor level*
Policy level	Lack of clear procedures for drug donations	
	- Absence of a coherent and rational national drug policy - Lack of clear and coherent customs regulations	- Lack of regulations regarding the export of medicines for humanitarian purposes
Logistical level	Multiplicity of suppliers, providing supplies at different intervals and each offering a different range and volume of assistance	
	- shortage of transport - access to beneficiary areas hampered due to tense security situations and changing rules regarding movement of personnel and supplies (harassment or confiscation at checkpoints) - multiple supply channels leading to random deliveries to end-users generally ill-prepared to receive large volume of aid - absence of maintenance and repair of health facilities due to lack of resources destruction due to shelling	- influx of drug donations delivered unannounced and unaccompanied - agencies did not provide technical support to the health facilities (such as equipment, storage space, personnel and training for sorting and organising the pharmaceutical stores)
Management level	Lack of a coherent and centralised system for the coordination and monitoring of needs, in-coming medical supplies and distribution of drug donations	
	The influx of large quantities of drug donations put an enormous strains on the management capacity of the health structures, confronted to - lack of experienced professional health staff, - no tradition of store management, inventory control and needs assessment as, *prior* to the war, they were used to a central system, - inadequate working conditions: lack of storage space, poor infrastructure, lack of maintenance, lack of security, lack of equipment, lack of communication means	- lack of proper needs assessment and coordination of requests - lack of expertise (no experienced health professionals) - high field staff rotation - lack of adaptability and flexibility of the drug supply programmes, making it difficult to respond efficiently to shortage or excess of supplies - lack of collaboration and coordination, each agency having its own scope of activities, defining its own policies and pursuing its own agenda

III.4.2 Quantitative problems: surpluses and shortages of medical supplies

a. Supplies in excess

First of all, it is important to stress that the bulk of the appropriate medical supplies provided throughout the war is the merit of the international humanitarian health agencies such as WHO, MSF, PSF, MDM and ICRC. They supplied most of the pharmaceutical donations in the form of essential drugs in spite of the very harsh security and access conditions. This enabled the war-time health care system to meet a substantial proportion of its essential needs. The following table gives an idea of the scale of the medical assistance provided by the major international agencies involved in regular drug and medical material supply programmes.

However, although those agencies have gained large expertise in relief operations in developing countries in Africa and Asia, they found themselves confronted in the former Yugoslavia to a new context: a highly volatile conflict in a European country which used to have high health standards. Therefore, their initial response, mainly pre-packaged medical kits designed for refugee situations in the South, was partly not adapted to the needs of the Yugoslavian health structures.

As a consequence, some medicines were supplied in too large quantities or non-needed medicines were provided, such as:

- antimalarial drugs (chloroquine), chloramphenicol, oral rehydration salt, phenytoin, ketamine and gentian violet.
- narcotics, with sometimes non-respect of the international and national laws regulating this type of medicine.
- morphine (hydroxodon), to the extent that the Ministry of Health and the WHO had to intervene to prevent uncontrolled deliveries [53].

The cantonal minister of health in East-Mostar also emphasised that international NGOs had fixed programmes at the initial stage of the relief operation but quickly adjusted their donations to the needs, thanks to their presence in the field and on-going needs assessment and monitoring activities.

In Tuzla, the Chief Medical Logistician at the central warehouse (opened at the end of 1994), stressed that they are now stuck with big quantities of medicines approaching expiry dates which they cannot dispose of because relief agencies are supplying directly to the recipients, lack flexibility in adapting their fixed programmes to the overall demand/supply situation and do not closely coordinate with the central warehouse. She too reported over-supply of narcotics as well as problems of over-supply due to pre-packaged kits (as an example, they use only two out of the seven medicines provided in the WHO mental kit).

Relief agencies themselves, as reported by MSF-H and ICRC, were confronted in their own warehouses with surpluses of medicines, which subsequently expired over time. Several reasons explain that situation: irrelevant ordering and changes in need patterns (quantities were ordered to cover needs for 3 to 6 months but it happened that the situation changed dramatically between ordering and delivery, as in the case of the fall of Srebrenica and Srpska Krajina), high field staff rotation and lack of experience, lack of monitoring and coordination among agencies and sometimes, lenient inventory control and warehouses management.

On the other hand, there was an uncontrolled influx of large quantities of inappropriate and/or poor quality drug donations which led to the stockpiling of tons of irrelevant, useless and expired medicines (see § III.4.3 and Chapter IV).

Table 4 - Drug supply programmes of the major international medical agencies in BiH

Agency	1992 (1)			1993			1994			1995			January to mid 1996		
	m3	ton	m$(2)	m3	ton	m$	m3	ton	m$	m3	ton	m$	m3	ton	m$
WHO (3)	0	0	0	*1.400*	350	2,660	*2.404*	601	6.623	*1.236*	309	4.251	684	171	*2.134*
ICRC (4)	*744*	186	2.323	*3.856*	964	12.053	*5.648*	912	11.398	*3.640*	910	11.376	*1.500*	375	4.683
MSF-H (5)	*3.840*	*960*	*12.000*	*3.840*	*960*	*12.000*	*3.840*	*960*	*12.000*	*3.840*	*960*	*12.000*	*1.920*	*480*	*6.000*
PSF (6)	826	195	2.458	2.150	555	6.938	1.748	374	5.200	2.568	503	5.616	811	172	2.389

Agency	cumulated donations from 1992 to mid 1996 (1)		
	m3	ton	m$
WHO	*5.724*	*1.431*	*15.668*
ICRC	*15.588*	*3.347*	*41.833*
MSF-H	*17.280*	*4.320*	*54.000*
PSF	*8.103*	*1.799*	*22.581*
Total	*44.495*	*10.897*	*134.082*

(1) data in italics are extrapolated
(2) budget is in million US$
(3) from WHO annual reports
(4) transmitted by the Bosnia Desk in Geneva
(5) from reference E
(6) source PSF Operation Unit

b. Gaps and shortages

There were shortages of vital medicines and medical material. In Sarajevo, as reported by the Drug Advisor at the Ministry of health [53], missing items were: disposable material such as gauze, syringes, plastic tube for tracheotomy, abdominal and chest drains and medicines such as iv. fluids, antibiotics, non-toxic analgesic, parenteral and oral antimicrobial medicines. Another major gap consisted of medicines for chronic diseases: antihypertensives, antirheumatics, gastro-enterology drugs. In the case of Sarajevo, a besieged city for months on end, such shortages can be explained by the lack of accessibility and priority given to food items each time convoys could access the city.

In Mostar, main shortages were vaccines (e.g. German measles), laboratory reagents and medicines for chronic diseases, especially antihypertensives and insulin, but there was no shortage of TB drugs.

In Tuzla, drugs which were needed and not provided for were: cardiotonics, antiaryhtmics, antihypertensives, antianginics, ophtalmics, antirheumatics, spamolitics, etc.

WHO noted that in the case of some particularly vital materials (i.e. clinical chemistry and microbiology lab kits), the agency was reported to be the only supplier. On the other hand, there were major gaps which none of the kits filled like cytostatics, x-ray film and developing chemicals [33].

In the evaluation survey conducted by ICRC [1], lack of supplies was reported as an important limitation by 62% of respondents (hospital representatives).

III.4.3 Qualitative problems : useless/unusable medical supplies

The key problem, as stressed by MoH, MSF, PSF, WHO and health facilities, was created by the delivery of unsorted consignments of partially used medicines collected from private individuals, health professionals or health facilities and sent unaccompanied, without prior notification, by non-professional people or associations. Those donations especially originated from the Bosnian Diaspora and refugees abroad as well as French, German and Italian groups of citizens. Most of the time, donated boxes contained a mix of unused medicines, sometimes with food, and/or clothing items. They were badly packaged, with no identification documents and proper labelling.

Such donations created great logistical problems and overwhelmed the health facilities management capacities. With their already scarce resources, the recipient facilities were unable to tackle the huge task of organising and sorting those mixed boxes, knowing that they would have a very low probability of extracting useful items (it is estimated that 80% of unused drugs collected from private individuals must be destroyed (cf. §II.2) [42]).

Inappropriate drugs comprised useless and unusable medicines. Useless drugs included:

- Medicines irrelevant to the epidemiological context (e.g. for minor ailments, for a disease which does not exist in the country, etc.);
- Medicines unknown or not usually used by the local health professionals (not within the scope of the National and WHO Essential Drug Lists).

Unusable drugs comprised:

- Medicines already expired on arrival or expired over time (oversupply, too short expiry deadline);
- Unidentifiable medicines (e.g. delivered unsorted, labeled in unknown foreign languages);
- Medicines damaged during shelling of warehouses or spoilt by bad conditions of transport, handling, storage and/or bad packaging.

The following table summarizes information on the quality of drug donations collected from various sources during the field visit. These data are gross estimates as no comprehensive and systematic evaluation has been carried out.

Table 5 - Estimates on the quality of donated drugs in BiH (as % of total volume)

Sources	Unusable	Not needed /irrelevant	Relevant but unsorted or not easy to identify	Immediately useful
WHO Zagreb	15%	30%	55%	
	45%			
Dr. Suko, East Mostar	20% expired on arrival	10% irrelevant	70% could have been used but problems with unsorted drugs and unknown drugs	
	30% not including unsorted drugs			
T. Lucic, West Mostar	50%		50%	
MoH Tuzla	50%		50%	
WHO Tuzla	at least 30 to 40%		around 60 to 70%	
S. Lucic, Sarajevo	8 to 10% expired on arrival		around 60% of total drug supply was provided by international medical agencies: over 90% were of good quality and useful (a)	
PSF Mostar	among the 200-300T of unusable drugs resulting from PSF sorting programme in Mostar, an estimated 90% are unused mixed drugs			
WHO	70% of donations to Velmos hospital in Mostar were inappropriate and useless consignments			
ICRC [1]			93% of respondents indicated that donated supplies were appropriate (b)	

(a) Sarajevo was a besieged city throughout the war, with limited and controlled access UNHCR and UNPROFOR airlift operations and escorted convoys only, which explains the high proportion of good quality donations
(b) Bearing in mind that 80% of respondents were hospitals and war hospitals mainly supplied with ICRC surgical kits and medicines donated by international medical NGOs and that part of the health facilities in Central Bosnia were not accessible for the study

From this table, it appears that inappropriate medicines represented between 30 to 70% of the donated drugs or, on average, 50-55% of all donations.

Comparing this table with table 1 (cf. §II.1), it is interesting to note the similarities in the figures, although the contexts of the emergency situations are very different from each other. Former Yugoslavia represents a conflict situation whereas Armenia (1988) and Guatemala (1976) represents cases of a natural catastrophe (earthquake). The situation in Georgia and Armenia (1994) are examples of countries with economic difficulties, benefiting from long-term aid. Therefore, it appears that inappropriate donation practices are the fate of all modern disaster situations, irrespective of their underlying cause.

III.5 MANAGEMENT OF USELESS MEDICAL SUPPLIES IN THE HEALTH FACILITIES

In general, given the high pharmaceutical standards prior to the war, expired medicines were put aside and not used. According to the health authorities, health facilities kept registers of expired drugs and destroyed them in conformity with the national regulations. In fact, expired and inappropriate medicines were either destroyed in existing incinerators (e.g. Sarajevo) designed for hospital wastes, either simply burnt in the domestic waste disposal facilities (around 10 tons every month as reported by the storekeeper at Tuzla hospital) or in the central heating system of the health facilities or even burnt and "recycled" into plastic (as reported in Tuzla by the local health authorities).

In Mostar, useless medicines are kept chaotically stockpiled in large storage rooms (see Chapter IV). A survey conducted in Tuzla canton by the Chief Logistician of the central warehouse [54] shows that between 0.5 to 5 tons of expired drugs are stored in each Dom Zdravlja (11 visited out of 14) and their disposal represents a big problem. The cantonal MoH has asked each Dom Zdravlja to register the expired drugs in the view of centralising storage and disposal, but apparently, the Dom Zdravlja are not ready to cooperate.

III.6 ACTIONS UNDERTAKEN IN BIH TO TACKLE THE PROBLEM OF INAPPROPRIATE DONATIONS

Throughout the war, the health authorities and international medical agencies gave several warning signals on the nature and quality of the medical donations provided to BiH and took a number of measures and initiatives to prevent the arrival of inappropriate donations. They are now looking for solutions for the management and disposal of the remaining amounts of useless medicines.

III.6.1 Health authorities

In 1992 already, the Ministry of Health in Sarajevo reported problems caused by inappropriate drug donations. The MoH in Sarajevo drew up list of needs for BiH every month. Those lists were disseminated through embassies and consulates still operating in BiH, relief agencies and NGOs as well as Bosnian diplomatic representations abroad. Because of the lack of communication and coordination during the war, we are doubtful about the reliability of the information they disposed, except for Sarajevo.

In addition, the Institute of Public Health in Sarajevo published throughout the war a weekly bulletin, reviewing the public health status, medical needs, etc. It continued to carry out drug quality control as well as research on medicines not familiar to health professional. The IPH worked in close collaboration with the MoH and the commission for the acceptance of medicines which existed prior to the war. As most relief agencies were delivering medical supplies directly to the health facilities, irrespective of the pre-war structure for drug supply and distribution, the IPH had to go and collect samples in the health facilities and sometimes directly from the patients. The IPH also drew up every year a report reviewing the emergency relief assistance. In coordination with the MoH, IPH is now preparing an evaluation of the relief operation in BiH which should be published in September 1996 and are planning an international seminar in Sarajevo by the end of 1996 to draw lessons.

Within the framework of the health reform and reconstruction programme, the federal MoH is currently developing a policy on pharmaceuticals with the assistance of WHO. As a result, a national list of essential drugs was drawn up and published in 1995 [55].

III.6.2 International relief agencies

At an early stage in the conflict, WHO was asked to coordinate unsolicited medical donations arriving from agencies without representation in BiH. WHO made an agreement with UNHCR that all in-kind donations be referred to WHO for approval. In 1993, WHO issued and disseminated donor guidelines outlining the criteria for accepting donated drugs and instructions regarding packaging, labelling, documentation, etc. [33]. The guidelines were subsequently revised and expanded in 1994 and finally led to the new inter-agency guidelines for drug donations issued in May 1996. Regional guidelines were also issued, for example in Mostar and Zenica.
WHO also drew up a list of "priority medical needs" on a monthly basis from information supplied by WHO field offices [33].
In Mostar, the Mayor of Mostar wrote a letter in October 1995 severely criticising the donation practices of the Western countries [14].

In August 1995, PSF and WHO launched a drug management programme for Mostar including physical rehabilitation of warehouses, sorting of medical supplies, installation of computerised inventory control and stock monitoring systems and training of personnel. PSF is planning a similar programme in Gorazde. At the end of 1995, a Medical Coordination Committee was set up with responsibility for issuing regular up-dated lists of medical needs for the Mostar region and authorising the arrival of donations [43].
WHO is currently looking into hospital waste management and planning a programme for the construction of incinerators, to be partly implemented by MSF-B.

IV. EVIDENCES COLLECTED FROM FIELD VISITS

IV.1 INTRODUCTION

Within the limits of the human, financial and time resources allocated to this mission, an extensive and quantitative evaluation of the medical emergency aid in BiH was impossible. In addition, the nature and evolution of the emergency situation in BiH (multi-focused conflict spread out over a period of three and a half years, variability of access, movements of front lines and field hospitals, diversity of aid in nature and quantities according to places, etc.) made it impossible to carry out an extensive analysis of the medical aid, as the one realised after the earthquake in Armenia [5].

The choice of the sites to be investigated was guided by the possibility of accessing pharmaceutical warehouses (whether total or partial access). This condition was a prerequisite as, without any tangible material elements, the research would have been limited to general statements and a compilation of existing reports and articles. To our knowledge, such an analysis, although limited, has not yet been conducted in the former Yugoslavia.

The research is therefore limited to a sector-related investigation and is not representative of the whole medical aid supplied, neither from a quality, nor from a quantity standpoint. It analyses what is remaining from the total aid received in some of the warehouses and is therefore representative of what has not been used, whatever the reasons.

IV.2 MATERIAL AND METHODS

IV.2.1 Choice of the sites

Prior to the consultants arrival, contacts were made by MSF/B with the health authorities of the districts where MSF/B is working. They were informed on the objectives of the investigation and their assistance was sought. Only the health authorities in East-Mostar (thanks to PSF's assistance) and in Tuzla reacted positively. In Gorazde, reactions were negative and access to warehouses impossible. In Sarajevo, the federal MoH was rather reluctant to collaborate and mentioned that they were carrying out their own evaluation of the medical aid supplied to BiH during the conflict and do not wish to communicate their information. Bihac was not visited due to lack of time and the distances involved.